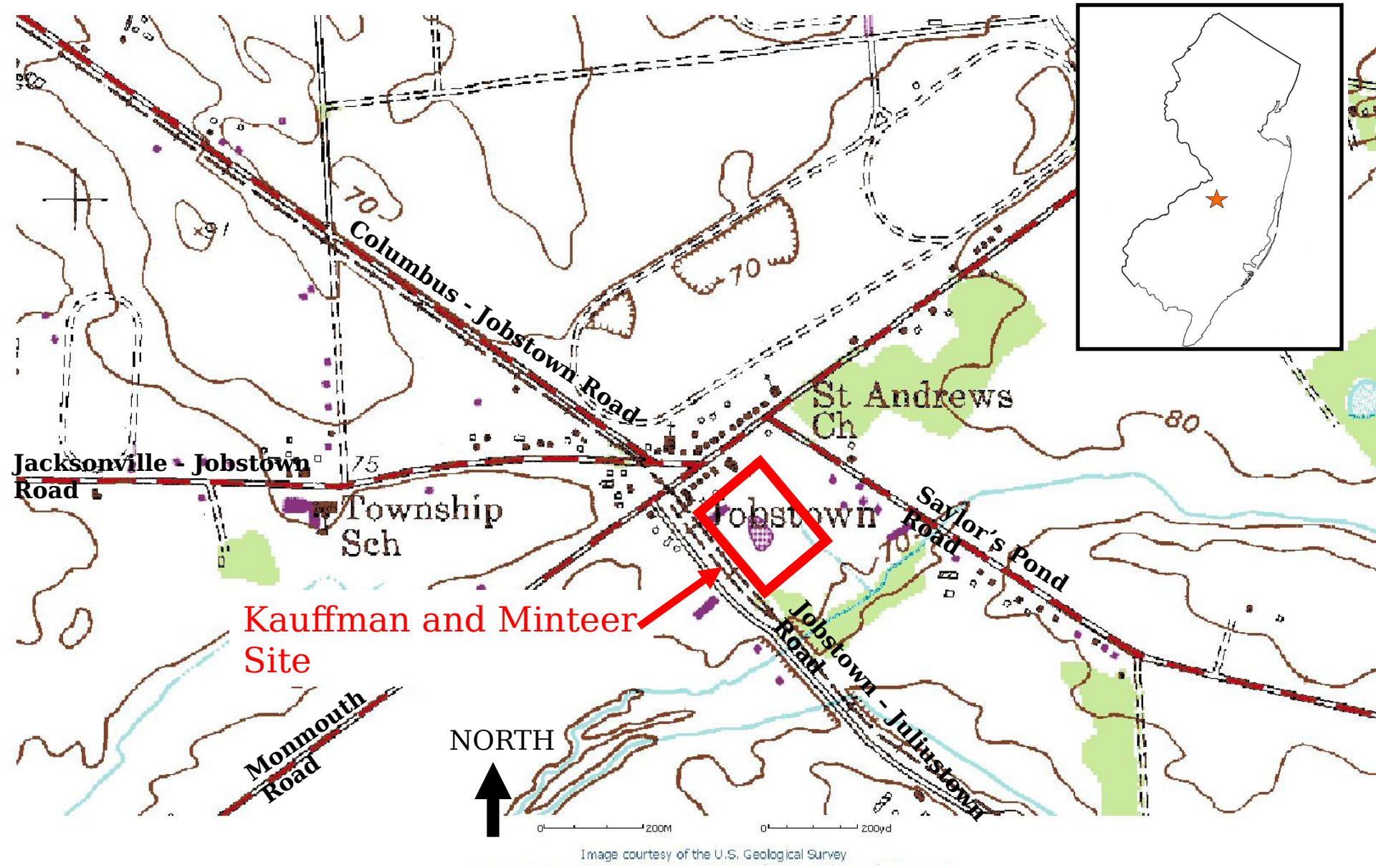
US Army Corps of Engineers
Kansas City District

Kauffman and Minteer Superfund Site - Performance Based Contracting Approach

Andrew S. Gosnell, R.G.
USACE – KCD
(816) 389-3891

HEARTLAND ENGINEERS



SITE LOCATION

Site History

- Kauffman and Minteer, Inc.
  - Operated industrial transportation facility 1960 to 1981
  - Handled plasticizers, resins, vegetable oils, soaps, petroleum oils and alcohol
  - Waste water from truck washing and leaky tanks contaminated soil and groundwater
- 1996 – OU1 ROD signed for lagoon related contaminants
- 2002 - OU2 ROD signed for VOC sources and highly contaminated groundwater

Physical Setting

- Geology
  - Late Cretaceous silts and sands
- Hydrogeology
  - Three distinct hydrostratigraphic units
    - Wenonah-Mount Laurel Aquifer
    - Marshalltown-Wenonah Confining Bed
    - Englishtown Aquifer
  - Only uppermost unit impacted

OU2 Remedy

- Chemical in-situ treatment of source area soils and groundwater
- Extraction and treatment of contaminated groundwater
- Institutional controls
- Groundwater monitoring

Remedial Design

- Phased Approach to RA Activities - USACE interagency agreement addresses source soils and highly contaminated Groundwater
- Design phase completed in 2006 consisted of treatability study, design and analysis report and Statement of Objectives (SOO) for RA

Treatability Study

- Bench scale study
- Pilot study
  - Focused on 50’ x 50’ area
  - Modified Fenton's reagent used
  - Target injection volumes not achieved due to off-gas effect causing short-circuiting of injection points and surfacing of groundwater

Pilot Study Implementation Issues / Lessons Learned

- Off-gas generation
- Injection well damage
- Preferential pathways
- Underground injection permit requirements
- Injection event timing
- Site access

• Chem-Ox Specialists
• Environmental Contractors
• Soil & Groundwater Remediation

Remedial Action Contract Mechanism

- Firm fixed price performance based task order
- Competed among Kansas City District's Pre-Placed Remedial Action Contractors (PRACs)
- Best value selection

Performance Based Acquisition – Minimum Requirements

- Results oriented scope
  - Performance Work Statement
  - Statement of Objectives (SOO)
- Measureable performance standards
- Quality Assurance Surveillance Plan (QASP)

K&M Performance Based Contracting Strategy

- A statement of objectives (SOO) / design package drafted
- Draft SOO provided to PRACs for feedback via request for information (RFI)
- SOO finalized and submitted with Request for Proposal (RFP) package to PRACs
- Selection panel evaluation of proposals for best value selection
- Quality Assurance Surveillance Plan developed for contractor performance monitoring

Statement of Objectives

- SOO/RD developed that focused on achieving end-state objectives
- Technical Project Planning Process used to develop performance metrics and acceptability criteria
- Comments solicited from PRAC contractors via a government request for information (RFI) prior to proposal request
- Both prescriptive and general requirements included

Statement of Objectives

- SOO included the following
  - General requirements including field procedures and health and safety
  - Prescriptive requirements including acceptance criteria and performance monitoring requirements
  - QA/QC
  - Period of Performance
  - Payment Schedule
- Acceptance criteria and performance monitoring developed jointly with USEPA Region 2 and NJDEP
- Lessons Learned incorporated in PBC Scope
- Incorporated PRAC responses to RFI

Statement of Objectives -Performance Monitoring

- Consisted of baseline, pre-final and final soil and groundwater samples
- A small number of detections above PRGs still met acceptance criteria

Performance Monitoring Requirements - Soil

- Baseline Event – Sampling at predetermined locations
  - 22 locations in treatment area, 2 down gradient of treatment area
- Pre-Final and Final Events
  - 50% of samples collected at baseline sample locations
  - 50% of samples collected at random locations to prevent preferential ISCO treatment areas
  - The Pre-Final Event and Final Event sampling locations may not be the same.

Acceptance Criteria - Soil

- 20 of 22 sample locations < 1,000 ppb for TCE and DCE. 2 locations with detections above soil cleanup criteria allowed – not to exceed 2,000 ppb
- For 2 borings located outside of treatment area, concentrations of TCE and DCE not to exceed the baseline concentrations by 50%

Request for Proposal

- Contractor required to:
  - Demonstrate a clear understanding of the SOO and lessons learned
  - Provide tangible solutions to implementability issues
    - Injection strategy
    - Reagent type
    - Off-gas generation

Quality Assurance Surveillance Plan

A government developed and applied document established to ensure contract was managed with systematic quality assurance methods

Key QASP components

- Statement of purpose
- Roles and responsibilities of participating government entities
- Performance metrics
- Methods of monitoring contractor performance

Table 1- Performance Objectives, Acceptance Criteria and Monitoring Methods		
Performance Milestone	**Acceptable Performance Standard**	**Monitoring Method (see note 1)**
Milestone No. 1 –USACE Acceptance of Project Kickoff/ Pre-Construction Conference Meeting Minutes	1. Conference held as scheduled. 2. The conference was well prepared and organized. 3. All outstanding issues identified and resolved in a timely manner. 4. Record the meeting minutes including significant proceedings and decisions and submit the meeting minutes within seven days after the meeting.	1. Attend the conference. 2. Review and comment on meeting minutes. 3. Approve meeting minutes.
Milestone No. 2 – USACE Acceptance of Work Plan [e.g. Schedule, Quality Control Plan (CQCP), Safety and Health Plan (SSHP), and Sampling and Analysis Plan (SAP)]	1. The CQCP, SSHP and SAP are submitted as scheduled. 2. The CQCP shall include all quality assurance and quality control requirements as specified in Section 4.2 of the SOO. 3. The SAP shall define all necessary procedures to complete SSHP and SAP requirements, interim sampling, well installation, and waste sampling. 4. The SSHP shall include all health and safety requirements as specified in Section 3.12 of the SOO. 5. The CQCP SSHP and SAP have gone through technical and quality review. 6. The UFP-QAPP format will be incorporated into work plan documents	1. Review and comment on Work Plan, CQCP, SSHP and SAP 2. Check to ensure the Work Plan, Schedule, CQCP, SSHP and SAP have included all elements required in the SOO. 3. Technical review forms are on file.
Milestone No. 3 – USACE Acceptance of Pre-Construction Quality Control and Safety Conference Meeting Minutes	1. Conference held as scheduled. 2. The conference was well prepared and organized. 3. All outstanding issues identified and resolved in a timely manner. 4. Record the meeting minutes including significant proceedings and decisions and submit the meeting minutes within seven days after the meeting.	1. Attend the conference. 2. Review and comment on meeting minutes. 3. Approve meeting minutes.

Table 1- Performance Objectives, Acceptance Criteria and Monitoring Methods		
Performance Milestone	**Acceptable Performance Standard**	**Monitoring Method (see note 1)**
Milestone No.4 – Mobilization and Purchase Reagents for ISCO Injection Event # 1	1. Submit a site layout drawing at least 30 days prior to mobilization. 2. Establish Contractor field office (optional), equipment and materials storage areas, decontamination facility, and parking area. 3. Install project signs. 4. Maintain open access for the emergency squad. 5. Collect documentation of Reagent Delivery and other Mobilization material deliveries.	1. Review and approve site layout drawing. 2. Survey installations for compliance with approved drawing. 3. Review Reagent Delivery receipts.
Milestone No. 5 – USACE Acceptance of installed monitoring and injection wells	1. Obtain all permits prior to drilling. 2. Use a NJ licensed driller and competent personnel. 3. Drilling activities overseen by an experienced geologist. 4. Install and develop wells according to the approved Work Plan and SAP. 5. The field activities are documented in a field log book.	1. Inspection of well installation activities. 2. Review of boring logs and well development data. 3. Document permit is appropriate
Milestone No. 6 – Baseline Soil and Groundwater Sampling Event and Reporting (including Pilot Testing)	1. Perform soil and groundwater sampling according to the approved SAP by experienced personnel. 2. Samples have been analyzed with the correct analytical methods and detection limits. 3. Sample results have been validated and determined to have met the project data quality objectives. 4. The field activities are documented in a field log book.	1. Review field sampling activities. 2. Review validated laboratory data to verify the results are adequate and usable. 3. Review and comment on reporting

Table 1- Performance Objectives, Acceptance Criteria and Monitoring Methods		
Performance Milestone	**Acceptable Performance Standard**	**Monitoring Method (see note 1)**
Milestone No. 7 - ISCO Injection Event # 1 Complete	1. Obtain injection and drilling permits in a timely manner. 2. First Chemical Oxidation application completed in accordance with the approved Work Plan. 3. Contractor has adequately addressed lessons learned and EPA's concerns from the pilot study. 4. Sufficient reagent has been properly delivered to the target zone. 5. Contractor has taken precaution to protect the phytoremediation trees. 6. Contractor has maintained access for the emergency squad. 7. Contractor has minimized spills and damage to the environment. 8. Contractor has followed health and safety procedures. 9. Contractor has followed the quality control procedures.	1. Oversee field activities to verify compliance with the approved Work Plan. 2. Inspect site conditions at completion. 3. Review daily field log reports to determine quantity of reagent injected.
Milestone No. 8 – Complete Performance Sampling Event # 1 and Reporting (including Interim and Final Sampling and Quality Control Reports)	1. See Milestone No. 6. 2. Quality Reports are completed and submitted according to Section 3.13.7 of the SOO.	1. See Milestone No. 6 2. Interim sample results for information only. 3. Review final sample results to verify achievement of objectives.

Table 1- Performance Objectives, Acceptance Criteria and Monitoring Methods		
Performance Milestone	**Acceptable Performance Standard**	**Monitoring Method (see note 1)**
Milestone No.9 - ISCO Injection Event # 2 Complete (including Reagent Cost)	1. Second Chemical Oxidation application completed in accordance with the approved Work Plan. 2. Sufficient reagent has been properly delivered to the target zone. 3. Contractor has taken precaution to protect the phytoremediation trees. 4. Contractor has maintained access for the emergency squad. 5. Contractor has minimized spills and damage to the environment. 6. Contractor has followed health and safety procedures. 7. Contractor has followed the quality control procedures.	See Milestone No. 7
Milestone No. 10 – Complete Performance Sampling Event # 2 and Reporting (including Interim and Final Sampling and Quality Control Reports)	See Milestone No.8	See Milestone No.8
Milestone No.11– ISCO Injection Event # 3 Complete (including Reagent Cost)	1. Third Chemical Oxidation application completed in accordance with the approved Work Plan. 2. Sufficient reagent has been properly delivered to the target zone. 3. Contractor has taken precaution to protect the phytoremediation trees. 4. Contractor has maintained access for the emergency squad. 5. Contractor has minimized spills and damage to the environment. 6. Contractor has followed health and safety procedures. 7. Contractor has followed the quality control procedures.	See Milestone No. 7

Table 1- Performance Objectives, Acceptance Criteria and Monitoring Methods		
Performance Milestone	**Acceptable Performance Standard**	**Monitoring Method (see note 1)**
Milestone No. 12 – Complete Performance Sampling Event # 3 and Reporting (including Interim and Final Sampling and Quality Control Reports)	See Milestone No.8	See Milestone No.8
Milestone No. 13 – USACE/EPA Acceptance of Pre-Final Sampling Event Results	1. See Milestone No. 8. 2. Sampling results are in accordance with the acceptance criteria in Section 3.1.3 of the SOO	1. See Milestone No. 8. 2. Review sample results to verify achievement of objectives.
Milestone No. 14 – USACE/EPA Acceptance of Final Sampling Event Results	1. See Milestone No. 8. 2. Sampling results are in accordance with the acceptance criteria in Section 3.1.3 of the SOO	1. See Milestone No. 8. 2. Review sample results to verify achievement of objectives.
Milestone No. 15 – Site De-mobilization (including Well and Borehole Abandonment and Site Restoration)	1. Receive approval from the Contracting Officer prior to abandoning wells. 2. Wells shall be abandoned according to NJDEP and ASTM 5299 requirements. 3. Boreholes shall be abandoned according to Section 3.9 of the SOO. 4. Remove all equipment, materials, supplies, and temporary facilities. 5. Restore surface conditions to pre-work conditions. 6. The field activities are documented in a field log book and decommissioning/abandonment record.	1. Inspection of well abandonment activities. 2. Review of well decommissioning/ abandonment record. 3. Inspect site conditions after restoration.
Milestone No. 16 – USACE Approval of Remedial Action Completion Report (RACR)	1. The RACR is submitted as scheduled. 2. The RACR shall include all elements as specified in Section 3.13.6 of the SOO. 3. The document has gone through technical review.	1. Review and comment on the RACR 2. Check to ensure the RACR has included all elements required in the SOO. 3. Technical review is on file.

Table 1- Performance Objectives, Acceptance Criteria and Monitoring Methods		
Performance Milestone	**Acceptable Performance Standard**	**Monitoring Method (see note 1)**
Milestone No. 17- EPA/NJDEP RACR Approval (or 60 days post submittal)	EPA/NJDEP RACR Approval is Received or 60 days post submittal.	Technical review is on file.

Benefits of PBC Approach

- Flexibility (technologies and technical approaches)
- Streamlined design process
- Insight not oversight - Focus on end products
  - Relies on industry innovation to provide optimal cleanup strategy to government
  - Minimal focus on process and oversight
  - Share institutional knowledge

Current Project Status

- Baseline sampling completed
- ISCO pilot test completed
- Contractor presently evaluating characterization and pilot test data – path forward pending

Observations - Lessons Learned

- Evaluate each project for applicability of performance based contracting approach
- Performance-based contracting philosophy still not fully understood by contractors
- Retain design contractor in RA phase when possible
- RFI process valuable
- Ensure payment milestones are realistic and achievable
- Ensure payment milestones are fully achieved prior to payment
- Ensure acceptance criteria are measureable and achievable
- Ensure QASP becomes part of the contract

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Questions?

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